

DEPARTMENT OF ENVIRONMENTAL QUALITY – OFFICE OF OIL, GAS, AND MINERALS

RESPONSE TO PUBLIC COMMENTS - APPLICATION A150095 FOR PERMIT TO DRILL AND OPERATE BY JORDAN DEVELOPMENT COMPANY FOR THE PROPOSED WORD OF FAITH 16-27 EXPLORATORY OIL AND GAS WELL , SOUTHFIELD, MICHIGAN

INTRODUCTION

On October 30, 2015, Jordan Development Company (Jordan) submitted a permit application to drill and operate a well pursuant to Part 615, Supervisor of Wells, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Part 615). Part 615 governs oil and gas development activities within the state of Michigan, and the Office of Oil, Gas, and Minerals (OOGM) of the Michigan Department of Environmental Quality (DEQ) is tasked with administering the statute and rules subject to that part.

PROJECT INFORMATION AND BACKGROUND

This permit application is for a proposed vertical well targeting the Niagaran formation at a depth of 2,900 feet below ground surface for potential hydrocarbon development. Wells targeting the Niagaran formation in Oakland County are subject to the well spacing and production provisions of the Supervisor of Wells' Special Order 2-81. The proposed well is located in a wooded area on the grounds of the Word of Faith International Christian Center. The well is proposed on a 40-acre drilling unit that comprises the southeast one-quarter of the southeast one-quarter of Section 27. The drilling unit and the producing interval meet the requirements established by Special Order 2-81.

Because this well is proposed in a city, village, or township with a population of 70,000 or more, the OOGM requested written comments and recommendations from the city of Southfield as is required by statute. On November 13, 2015, the city of Southfield submitted written comments and questions to the OOGM. On November 24, 2015, OOGM and city of Southfield staff met to discuss specifics and answer questions concerning the oil and gas regulatory program. On January 19, 2016, the OOGM received additional written comments from the city of Southfield regarding this application. In addition to those comments, this proposal has generated a great deal of interest and a significant amount public comment. In fact, over 2,000 comments regarding this proposal have been submitted to the OOGM. Due to the volume of interest and comments, the application review period was extended beyond the 50-day statutory permit processing deadline, and the OOGM sent letters to all residences within one-quarter mile of the well location in an effort to keep nearby residents informed of this proposal.

At the request of State Representative Jeremy Moss, the city of Southfield, and many other commenters, the OOGM held a public meeting on February 17, 2016, at the Southfield High School. This meeting was attended by an estimated 1,000 people. The purpose of this forum was to invite further public comment, inform the area residents of the proposal, and answer questions regarding oil and gas development activities.

The OOGM is not responding directly to individual public comments either in favor or against the proposal; however, the OOGM did consider all comments in making the final permit decision.

For those against the proposal, the concerns were generally focused on potential adverse effects on the environment (water, soil, and air) and natural resources, public health and safety, and property values. Concerns were also expressed over potential impacts from hydraulic fracturing (fracking), on-site waste and wastewater disposal, and induced seismic (earthquake) activity. Many commenters also objected to the OOGM considering a permit when the city of Southfield has a current moratorium against oil and gas drilling, and to the granting of a permit that would allow drilling in an area zoned for residential use. Some commenters stated that the DEQ lacks credibility due to the history with the Flint water issue, and that DEQ permitting statistics and the approval ratios show a lack of thorough review and proper consideration. Many commenters expressed concern over the decision of the Word of Faith International Christian Center to grant a lease for exploration and production of oil and gas on the church's property. For those supporting the proposal, commenters noted the potential economic benefits and the requirements of the law and rules.

PROTECTION OF THE ENVIRONMENT, NATURAL RESOURCES, AND PUBLIC HEALTH AND SAFETY

Many commenters expressed concern for potential adverse impacts to the environment, natural resources, and public health from this activity. To protect water resources, Michigan has strict and robust casing and sealing requirements for all oil and gas wells and strict containment practices for containing spills at the surface. The Word of Faith 16-27 well will be constructed with three concentric casing strings (steel pipes), set to 300 feet, 1,200 feet, and 2,900 feet respectively. The uppermost two strings will be cemented over the entire length - back to the surface. By cementing these two strings to surface the freshwater aquifers are protected from fluid migration. In addition, should the well be produced, the hydrocarbons will be produced through tubing (that is, another steel pipe inside the other three), thereby providing another layer of protection. These redundant protections also serve to protect any surface waters that may be in hydrologic connection to the groundwater.

Jordan proposes to use a temporary water well during the drilling process. The volume and rate of water withdrawn is expected to be approximately 25,000 gallons over a two-to-three week period. Because the amount of water needed in drilling is minimal, spread out over a few weeks, and there are no residences or recorded water wells within 900 feet of the well location, the water table drawdown from this activity and the effect on nearby water wells is calculated to be negligible.

As an added protection, the OOGM is requiring through a specific permit condition that Jordan install a downgradient monitoring well and collect a water sample from both the monitoring well and the temporary water well prior to commencing drilling and at three months and six months following drilling completion. These water samples will provide a baseline for the area and will provide a means to verify whether there are any groundwater impacts from the drilling of this well.

In order to further assure that no releases to the environment occur should there be production at this location, Michigan rules require secondary containment to be placed around the well

head, pump jack, and tanks. The rules also require periodic water sampling in six-month intervals from monitoring well(s) downgradient from any storage areas.

In addition to the secondary containment requirements mentioned above, the land and soils at this location also would be protected through the use of soil erosion control measures that prevent off-site erosion and sedimentation. Above ground steel tanks will be used for the handling of drilling mud and cuttings generated during the drilling process. In the unlikely event of a spill or release, Michigan operators are required to promptly report the details of that spill or release and begin recovery and cleanup efforts immediately. While spills and releases are not common overall, they can and do occur. The bulk of spills and releases in Michigan are minor, discovered and reported quickly, and cleaned up in a timely manner.

Several commenters expressed concerns about the potential impact to the surrounding air from this activity. Specifically, concerns were raised regarding the impacts related to the flaring of natural gas (Methane) and the potential for hydrogen sulfide gas. The Word of Faith 16-27 well would have the ability to flare gas only during the initial test period (normally 30 days). That said, Oakland County Niagaran formation production is subject to the provisions of Supervisor of Wells Special Order 3-71 (No Flare Order), and any flaring of gas beyond an initial test period would be subject to additional approvals from the DEQ. While hydrogen sulfide gases are not expected at this location, should hydrogen sulfide be present in excess of 300 parts per million, the location and operation of production facilities for this well would be restricted. Lastly, Michigan's rules do not allow nuisance odors in the exploration for, or in the development, production, handling, or use of, oil, gas, or brine or in the handling of any product associated with the exploration, development, production, or use of oil, gas, or brine.

Many commenters raised concerns about possible impacts to threatened and endangered species. To review for this potential, the OOGM compared the well location and the adjacent areas (contiguous square-mile sections) against the Michigan Natural Resources Inventory (MNFI). The MNFI is a comprehensive source of existing data on Michigan's threatened and endangered species and data from the MNFI is used to guide conservation and land management activities throughout Michigan. The MNFI review indicated that no threatened and endangered species have been documented in the area within the last 50 years. Due to the wooded habitat; however, the OOGM is applying a date restriction prohibiting tree clearing activities greater than one acre from April 1 through September 30 to this permit due to the potential for roosting and pup rearing of the Federally Threatened *Northern Long-Eared Bat* and the State/Federally Endangered *Indiana Bat*.

A few comments were received regarding the potential impacts to the wetland areas near the well location. Within the Environmental Impact Assessment portion of the application and the plat of the erosion control plan, Jordan details the wetland boundary and the specific protective measures being used to prevent impact to the wetland. According to Jordan's plans no portion of the wetland will be disturbed. The wetland boundary was flagged by a wetland expert employed by Jordan, and this boundary was confirmed by a wetland scientist at DEQ Water

Resources Division (WRD). Based upon the site plan, WRD staff determined that no wetlands will be disturbed and a DEQ wetlands permit is not necessary.

In addition to the protective measures detailed above and within the provisions of Part 615, public health and safety will be further protected through specific permit conditions that require Jordan to communicate potential hazards with the local fire marshal and to limit the accessibility of the public to the well site during drilling operations through fencing and on-site security. OOGM staff will be inspecting site operations to ensure Jordan complies with the rules and requirements within Part 615.

POTENTIAL IMPACTS ON NEARBY PROPERTIES AND PROPERTY VALUES

Within the provisions of Part 615 there are specific safeguards in place for development activities in order to minimize the impact to surrounding properties. Specifically, Part 615 establishes a defined minimum setback from an existing structure used for private and public occupancy, and in this case (because the well is proposed in a city or township with a population of 70,000 or more) the setback distance is 450 feet, which is 50 percent greater than the 300-foot setback requirement for well locations of cities and townships less than 70,000. For the Word of Faith 16-27 well application, the nearest structure used for private and public occupancy is the church (525 feet). The next closest structure is approximately 700 feet. The nearest residence is 900 feet. These distances are in excess of the minimum setbacks.

The time when drilling occurs is the time when site activities will be most noticeable because activities run 24-hours-a-day-seven-days-a-week. The estimated time to complete drilling this well is two weeks. If the well is productive, well completion activities will follow. These activities typically occur during daylight hours on weekdays for only a few weeks to one month. Some commenters urged the OOGM to apply requirements recently established for oil and gas wells in densely populated areas. Those comments refer to Supervisor of Wells Instruction 1-2015, *Oil and Gas Development in High Population Density Areas*. The OOGM has decided to impose most of the requirements of the Instruction on the proposed Word of Faith 16-27 well as specific permit conditions, even though the site does not fully meet the established criteria for a 'High Population Density Site'. In order to be considered a 'High Population Density Site' all of the following conditions must exist:

- 1) The well location is in county with a population of 750,000 or more.
- 2) The well location is zoned exclusively for residential use by the local zoning authority at the time the permit application is received by the OOGM.
- 3) There are 40 or more structures used for public or private occupancy, in any 90-degree quadrant within 1,320 feet of the well location.

While the first two conditions do apply to this proposal, the third condition does not. The number of structures within the densest quadrant is 25. Some specific conditions from the Supervisor of Wells Instruction 1-2015 that are imposed on this permit include requiring the use of hospital type mufflers on the drilling rig, requiring that light be shielded away from nearby structures, and

requiring shrouding of the flare while the well is being tested. Lastly, all deliveries, casing runs, and cementing activities will be restricted to daylight hours on weekdays to the extent practical.

In addition to the additional protective measures from Supervisor of Wells Instruction 1-2015, *Oil and Gas Development in High Population Density Areas*, Part 615 rules have specific provisions that do not allow operators to create nuisance odors or nuisance noise. All of these requirements are designed to minimize impacts to nearby properties and residents.

Impacts to property values (whether positive or negative) are outside the purview of Part 615.

The OOGM recognizes that oil and gas development often involves conflicts over land use, and we are sensitive to the concerns of residents in the vicinity of such development. The goal of the OOGM is to minimize the causes of such conflicts while adhering to the constitutional requirement that we cannot take private property rights without just compensation. Courts in Michigan (and other states) have found that the right to develop oil and gas on one's property is a separate and distinct right unto itself, and a government agency is liable for monetary damages if it denies that right. The OOGM has evaluated potential alternative locations for the proposed well and has determined there is no feasible alternative location that would allow development of the potential oil and gas on the property in question.

HYDRAULIC FRACTURING AND WASTE/WASTEWATER DISPOSAL

Many comments were focused on hydraulic fracturing well completions and whether or not hydraulic fracturing would be used on the Word of Faith 16-27 well. The Environmental Impact Assessment portion of the permit application requires the applicant to state whether hydraulic fracturing will be utilized in the proposed well. In this case, Jordan has stated it will not use hydraulic fracturing, and in any event hydraulic fracturing is not effective for the formation (Niagaran) being targeted. Should hydraulic fracturing be proposed in the future, it would require additional approval from OOGM.

Also within the Environmental Impact Assessment, Jordan states that the solid portion of the cuttings and mud will be disposed at an approved landfill and the liquid wastes are to be hauled by a licensed waste hauler (Beckman Production Services). There will be no on-site disposal of any solid or liquid wastes at this location. In response to comments we received, the OOGM has confirmed that Jordan will be taking the solid wastes generated to Republic's Sauk Trail Hills Landfill in Canton, Michigan.

INDUCED SEISMIC ACTIVITY

Several commenters expressed concern about the potential for increased seismic activity or earth movement from the drilling and operation of the Word of Faith 16-27 well. It is well documented that there has been an increase in seismicity (earthquakes) in other areas of the United States associated with oil and gas development activities. This increased seismicity is attributed to disposal of wastewater into deep injection wells, and not to drilling of exploratory or production wells. Most of these seismic events are small in overall intensity, although some relatively large events have been measured. Michigan's geology and disposal practices are not

conductive to inducing seismic activity. In fact, Michigan has never had an earthquake associated with an injection well. Furthermore, and as mentioned above, the Word of Faith 16-27 well is proposed for production only, and not for injection. Injection wells require separate permits along with public notice and an opportunity for public hearings.

SOUTHFIELD MORATORIUM AGAINST OIL AND GAS DEVELOPMENT

The current moratorium in place within the city of Southfield is outside the purview of Part 615. The Part 615 permit issued by the OOGM does not preclude the necessity of obtaining other local, state, or federal permits that may apply to the drilling and operation of a well.

WELLS SHOULD NOT BE ALLOWED IN RESIDENTIAL AREAS

While drilling for oil and gas in Michigan is more often conducted in remote areas, there have been many instances where this activity has occurred within urban and suburban areas. Many of those wells have been drilled in areas more densely developed than the Word of Faith 16-27 well site and nearer to population centers, homes, and buildings. Additional safeguards were imposed for this type of activity in residential areas almost 30 years ago under Supervisor of Wells Instruction 2-87, *Drilling of Wells within Residential Areas*. The initial requirements from this 1987 instruction were later incorporated into the current rules under Part 615. In residentially zoned areas, no in-ground pits are allowed, pump jacks must have electric motors, well heads must be fenced, and flaring of hydrogen sulfide gas is not allowed.

DEQ CREDIBILITY IN LIGHT OF THE FLINT WATER CRISIS

A large number of commenters brought up the situation with Flint's drinking water. The Flint water issue is very serious, and there are many state government agencies working on it. Oil and gas development activities are completely unrelated to the situation that is occurring in Flint. The DEQ oil and gas program operates under different statutes, rules, and procedures, and is administered by different staff. The OOGM is a separate division of the DEQ and had no involvement in the drinking water issues of Flint.

DEQ PERMITTING STATISTICS

Another issue that was brought up had to do with the DEQ's permitting statistics. Many commenters referenced a statistic highlighted on the most recent DEQ performance scorecard webpage. During Fiscal Year 2014, all programs within the DEQ issued 9,286 permits and denied four; the OOGM statistics under Part 615 are included in those Fiscal Year 2014 totals. For the OOGM specifically during the past five fiscal years, we issued 957 permits and denied 31 applications. While it is true that the majority of permits are issued, the approval process is far from automatic. A major item that is lost within these statistics is the fact that the OOGM requires about half of the oil and gas permit applications we receive to be revised in order to comply with the Michigan rules. All applications are thoroughly reviewed for completeness and conformance to Michigan rules and laws. If any application cannot be revised to meet the Michigan rules and laws, it will not be approved.

CONCERNS WITH THE WORD OF FAITH INTERNATIONAL CHRISTIAN CENTER

Many comments were received regarding the surface property owner where the well is proposed – the Word of Faith International Christian Center. Clearly, any opinions regarding the church and its leadership has no bearing on the issuance of a permit from the OOGM. The permit is being issued to Jordan, not the Word of Faith International Christian Center; the identity of the owner of the oil and gas rights is irrelevant to the permitting process.

SUPPORT FOR ISSUANCE OF A PERMIT

Many comments were received expressing support for issuance of a permit for the proposed well. Commenters stated that revenue that may accrue to the Word of Faith International Christian Center from oil production would sustain the church's programs to support the community and worthy causes; and that the OOGM should follow the law and issue a permit if the application and proposed operation meet the requirements of the law. Potential monetary benefits are not a factor that can be considered by the OOGM in making a permit decision; however, the OOGM agrees that the permit decision should be based on the requirements of the law and regulations.

OOGM DECISION

OOGM staff has conducted a thorough and intensive review of the proposed Word of Faith 16-27 permit application and has determined that the application meets our regulatory requirements. For that reason, we have made the decision to proceed with issuing a permit to the Jordan Development Company. Of all the comments we received in opposition to the issuance of this permit, we did not receive any matters of fact that would require denial of this application under Michigan statute or rules. We appreciate all the comments that were received and the passion of those who had taken an interest in this proposal. The OOGM's final decision must be based upon law, and we have a duty to honor property rights. We recognize that this decision may not satisfy all parties; however, we are confident that the decision is the correct one, and we hope that this document adequately responds to the concerns of those who submitted comments.